



AYDIN ADNAN MENDERES UNIVERSITY
GRADUATE SCHOOL OF HEALTH SCIENCES
BIOSTATISTICS
BIOSTATISTICS (MEDICAL)
BIOSTATISTICS (MEDICAL) MASTER
COURSE INFORMATION FORM

Course Title	Introduction to Artificial Neural Networks								
Course Code	BİS524		Course Level		Second Cycle (Master's Degree)				
ECTS Credit	2	Workload	51 (Hours)	Theory	1	Practice	0	Laboratory	0
Objectives of the Course	This course provides basic information about neural networks and provides application examples. Medical usage is included.								
Course Content	Base concepts of artificial neural networks, theory of artificial neural networks, activation functions, learning algorithms.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Project Based Study, Individual Study								
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading

1	Öztemel, E. (2003). Yapay sinir ağları. PapatyaYayincilik, Istanbul.
2	Zurada, J. M. (1992). Introduction to artificial neural systems (Vol. 8). St. Paul: West publishing company.
3	Haykin, S. S., Haykin, S. S., Haykin, S. S., Elektroingenieur, K., & Haykin, S. S. (2009). Neural networks and learning machines (Vol. 3). Upper Saddle River: Pearson education.
4	Hagan, M. T., Demuth, H. B., Beale, M. H., & De Jesús, O. (1996). Neural network design (Vol. 20). Boston: Pws Pub..

Week	Weekly Detailed Course Contents	
1	Theoretical	Basic definitions and concepts
2	Theoretical	ANN's development history
3	Theoretical	Structure and basic elements of ANNs
4	Theoretical	ANN models
5	Theoretical	Learning and adaptation, neural networks' learning rules-1
6	Theoretical	Learning and adaptation, neural networks' learning rules-2
7	Theoretical	Single-layer feedback networks
8	Intermediate Exam	Midterm exam
9	Theoretical	Single-layer feedback networks
10	Theoretical	Multi-layer feedforward networks-1
11	Theoretical	Multi-layer feedforward networks-2
12	Theoretical	Activation functions
13	Theoretical	Applications of neural network-1
14	Theoretical	Applications of neural network-2
15	Theoretical	Literature review and discussion
16	Final Exam	Final exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	1	14
Assignment	1	5	0	5
Midterm Examination	1	10	1	11



Final Examination	1	20	1	21
			Total Workload (Hours)	51
			[Total Workload (Hours) / 25*] = ECTS	2
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	To be able to comprehend basic ANN
2	To be able to understand Artificial Neural Network structure
3	To be able to comprehend ANN learning algorithms
4	To be able to comprehend the matters to be considered in the design of ANN
5	To be able to explore ANN application areas

Programme Outcomes (Biostatistics (Medical) Master)

1	To be able to understand the interdisciplinary interaction related with biostatistics.
2	to be able to use Theoretical and practical knowledge at the level of expertise.
3	To be able to interpret the information by integrating information from different disciplines and create new information
4	To be able to analyze the problems encountered by using research methods
5	to be able to conduct a study as an independent specialist
6	To be able to formulate solutions for complex unpredictable problems encountered by developing new approaches and taking responsibility.
7	To be able to resolve problems in environments that require leadership.
8	To be able to evaluate and direct knowledge and skills with a critical approach at the level of expertise.
9	To be able to give statistical advise at the beginning stages of preparing health related projects
10	To be able to get the knowledge and the ability of using statistical packages

Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5
P1	2	4	3	2	5
P2	5	5	5	4	4
P3	4	4	4	3	5
P4	4	3	5	4	4
P5	4	5	5	5	5
P6	4	5	5	4	5
P7	4	3	3	3	4
P8	4	3	4	4	4
P9	5	5	5	5	4
P10	3	3	5	4	3

